

PRODUCT NEWS

PN-E-019

SERIES EXPANSION

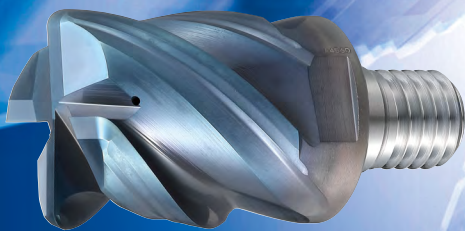


Solid modular head

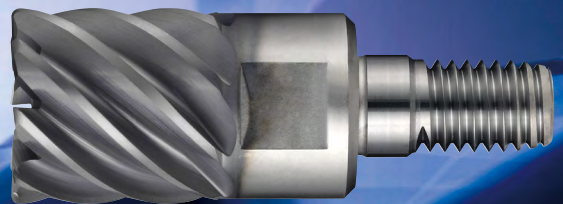


S-Head series

■ SMSR type
ø16 ~ ø32



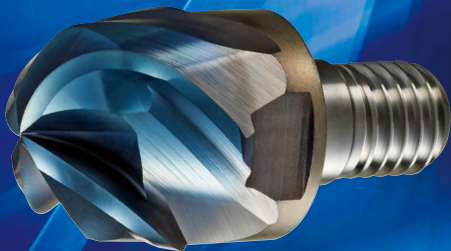
■ SMSA type
ø16 ~ ø32



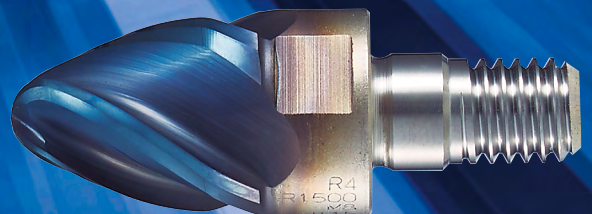
■ SMAL type
ø16 ~ ø32



■ SMHB type
ø16 ~ ø20



■ STLP type
ø16 ~ ø25



DIJET GmbH

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SMAL
TYPE

S-HEAD for Aluminium

Through
coolant
hole

Sharp corner

Shoulder Milling

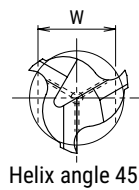
Slotting

Pocket Milling

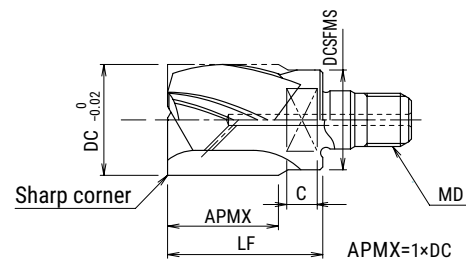
Helical Interpolation

Drilling

- Solid carbide modular head with multi-edges for aluminum.
- Positive geometry with 45 degree helix angle & 20 degree rake angle.
- 3 flutes allow excellent chip ejection.
- Through coolant holes prevent material welding.



Helix angle 45°



Cat.No.	Stock	No. of Flutes	Dimensions (mm)						
			DC	APMX	LF	DCSFMS	MD	C	W
NEW SMAL-3160-M8	●	3	16	16	24	15	M8	5.5	14
SMAL-3180-M8	●		18	18	26	15			
SMAL-3200-M10	●		20	20	28	18	M10		17
SMAL-3220-M10	○		22	22	31	19			
SMAL-3250-M12	○		25	25	35	23	M12		19
SMAL-3280-M12	○		28	28	38	24			
SMAL-3320-M16	○		32	32	42	29	M16		27

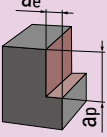
● : Stocked Items ○ : Stock in Japan

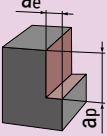
◆ RECOMMENDED TIGHTENING TORQUE

Tool dia. ϕ Dc(mm)	Screw	Width Across Flat W(mm)	Cat. No 	Tightening torque
ϕ 16	M8	14	DS-14	10~11 N·m
ϕ 18	M8	14	DS-14	10~11 N·m
ϕ 20	M10	14	DS-14	10~11 N·m
ϕ 22	M10	17	DS-17	10~16 N·m
ϕ 25	M12	19	DS-19	15~20 N·m
ϕ 28	M12	22	DS-22	15~20 N·m
ϕ 32	M16	27	DS-27	20~25 N·m

⚠ Warning – Use DIJET “DS-type” spanner wrench to prevent over-tightening.

■ Recommended Cutting Conditions
● Shoulder milling

Material	Depth of Cut a_e 	Tool dia. (mm)							
		16		18		20		22	
		n (min ⁻¹)	V_f (mm/min)	n (min ⁻¹)	V_f (mm/min)	n (min ⁻¹)	V_f (mm/min)	n (min ⁻¹)	V_f (mm/min)
Aluminium alloy (A5052)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	3,600	900	3,200	800	2,800	700	2,600	650
Aluminium alloy (A7075)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	3,000	750	2,600	650	2,400	600	2,100	520
Aluminium alloy (Below Si 13%)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	3,600	900	3,200	800	2,800	700	2,600	650
Copper alloy (C1100)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	2,000	500	1,800	450	1,600	400	1,400	350

Material	Depth of Cut a_e 	Tool dia. (mm)					
		25		28		32	
		n (min ⁻¹)	V_f (mm/min)	n (min ⁻¹)	V_f (mm/min)	n (min ⁻¹)	V_f (mm/min)
Aluminium alloy (A5052)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	2,300	570	2,050	510	1,800	450
Aluminium alloy (A7075)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	1,900	470	1,700	420	1,500	370
Aluminium alloy (Below Si 13%)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	2,300	570	2,050	510	1,800	450
Copper alloy (C1100)	$a_p \leq D_c$ $a_e \leq 0.05D_c$	1,300	320	1,150	280	1,000	250

Note

1. Use water-soluble coolant.
2. Confirm appropriate gripping length of shank.
3. When ramping, apply 40~70% parameters from standard cutting conditions table.
4. Use rigid and accurate machine as possible.
5. If rpm available is lower than that recommended, reduce the feed rate proportionately.
6. Do not use higher rpm than that recommended.

■ Additional cutting conditions for longer tools

The percentages below should be applied, according to L/Dc.

1. Shoulder milling

L / Dc	n (min ⁻¹)	V_f (mm/min)	
~ 4Dc	0%	0%	—
5 ~ 6Dc	25% or below	30% or below	—
7 ~ 8Dc	40% or below	50% or below	Over Dc22 is not recommended

2. Slot milling

L / Dc	n (min ⁻¹)	V_f (mm/min)	a_p
~ 4Dc	0%	0%	0.15Dc or below
5 ~ 6Dc	not recommended		
7 ~ 8Dc	not recommended		

SMSR
TYPE

Anti-Vibration Solid Carbide Head

Through
coolant
hole

DH
Coating

Corner
radius R

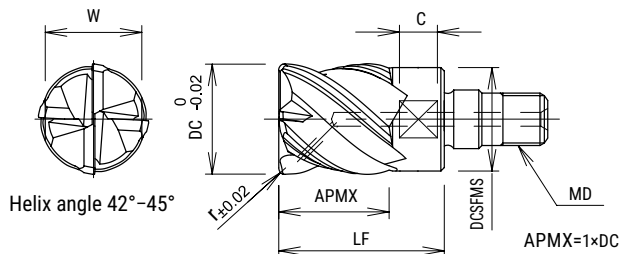
Shoulder Milling

Copy Milling

Pocket Milling

Helical Interpolation

- Unequal pitch & irregular helix achieves stable machining.
- Positive geometry and through coolant hole prevent material welding and gives excellent chip evacuation.
- Widely applied from Carbon steel, Mold steel, Stainless steel & Ti-Alloy.



Cat.No.	Stock	No. of Flutes	Dimensions (mm)							
			DC	RE	APMX	LF	DCSFMS	MD	C	W
NEW SMSR-4160R02-M8	●	4	16	0.2	16	24	15	M8	5.5	14
SMSR-4160R05-M8	●			0.5						
SMSR-4160R10-M8	●			1						
SMSR-4160R20-M8	●			2						
SMSR-4160R30-M8	●			3						
NEW SMSR-4200R02-M10	●	4	20	0.2	20	29	19	M10	5.5	17
SMSR-4200R05-M10	●			0.5						
SMSR-4200R10-M10	●			1						
SMSR-4200R20-M10	●			2						
SMSR-4200R30-M10	●			3						
NEW SMSR-4250R02-M12	●	4	25	0.2	25	35	24	M12	5.5	22
NEW SMSR-4250R05-M12	●			0.5						
SMSR-4250R10-M12	●			1						
SMSR-4250R20-M12	●			2						
SMSR-4250R30-M12	●			3						
NEW SMSR-4300R02-M16	○	4	30	0.2	30	44	29	M16	5.5	27
NEW SMSR-4300R05-M16	○			0.5						
SMSR-4300R10-M16	○			1						
SMSR-4300R20-M16	○			2						
SMSR-4300R30-M16	○			3						
NEW SMSR-4320R02-M16	●	4	32	0.2	32	46	30	M16	5.5	27
NEW SMSR-4320R05-M16	●			0.5						
SMSR-4320R10-M16	●			1						
SMSR-4320R20-M16	●			2						
SMSR-4320R30-M16	●			3						

● : Stocked Items ○ : Stock in Japan

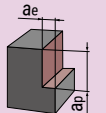
◆ RECOMMENDED TIGHTENING TORQUE

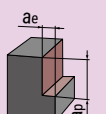
Tool dia. ϕ Dc(mm)	Width Across Flat W(mm)	Cat. No	Tightening torque
ϕ 16	14	DS-14	10~11 N·m
ϕ 20	17	DS-17	10~16 N·m
ϕ 25	22	DS-22	15~20 N·m
ϕ 30	27	DS-27	20~25 N·m
ϕ 32	27	DS-27	20~25 N·m

⚠ Warning – Use DIJET “DS-type” spanner wrench to prevent over-tightening.

■ Recommended Cutting Conditions

● Side Cutting

Material	Depth of Cut 	Tool dia. (mm)								
		16			20			25		
		ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	70	2,980	1,430	70	2,390	1,150	100	1,910	920
		110	2,690	1,230	125	2,150	980	150	1,720	780
		150	2,390	1,030	175	1,910	830	200	1,530	660
Mold steel (NAK80, HPM1, P21) 38-43HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	70	2,390	1,150	70	1,910	920	100	1,530	730
		110	2,150	980	125	1,720	780	150	1,380	630
		150	1,910	830	175	1,530	660	200	1,220	530
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	70	1,390	670	70	1,110	530	100	890	430
		110	1,250	570	125	1,000	460	150	800	360
		150	1,110	480	175	890	380	200	710	310
Austenitic stainless steel (SUS304, 316, 317)	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	70	1,990	960	70	1,590	760	100	1,270	610
		110	1,790	820	125	1,430	650	150	1,150	520
		150	1,590	690	175	1,270	550	200	1,020	440
Titanium alloy (Ti-6Al-4V) 35-43HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	70	1,590	640	70	1,270	510	100	1,020	410
		110	1,430	540	125	1,150	440	150	920	350
		150	1,270	460	175	1,020	370	200	810	290
Heat resistant alloy (INCO718) 35-43HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	70	990	200	70	800	160	100	640	130
		110	900	170	125	720	140	150	570	110
		150	800	140	175	640	120	200	510	90

Material	Depth of Cut 	Tool dia. (mm)					
		30			32		
		ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	110	1,590	760	110	1,490	720
		160	1,430	650	160	1,340	610
		210	1,270	550	210	1,190	510
Mold steel (NAK80, HPM1, P21) 38-43HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	110	1,270	610	110	1,190	570
		160	1,150	520	160	1,070	490
		210	1,020	440	210	950	410
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	110	740	360	110	700	340
		160	670	310	160	630	290
		210	590	250	210	560	240
Austenitic stainless steel (SUS304, 316, 317)	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	110	1,060	510	110	990	480
		160	950	430	160	900	410
		210	850	370	210	800	350
Titanium alloy (Ti-6Al-4V) 35-43HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	110	850	340	110	800	320
		160	760	290	160	720	270
		210	680	240	210	640	230
Heat resistant alloy (INCO718) 35-43HRC	$a_p \leq 0.8D_c$ $a_e \leq 0.1D_c$	110	530	110	110	500	100
		160	480	90	160	450	90
		210	420	80	210	400	70

■ Additional cutting conditions for longer tools

The percentages below should be applied, according to L/Dc.

L / Dc	n (min ⁻¹)	Vf (mm/min)	a _p (mm)	a _e (mm)
$L \leq 4D_c$	0%	0%	0%	0%
$4D_c < L \leq 6D_c$	20% reduction	30% reduction	0%	~ 0.05Dc
$6D_c < L$	30% reduction	50% reduction	~ 0.5Dc	~ 0.025Dc

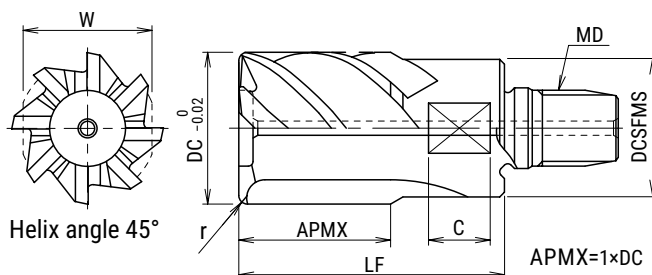
Note) Slot milling is not recommended.

SMSA
TYPE

Solid Carbide Modular Head

with highly repetitive ground screw

- Applicable for General steel, Stainless steel, Heat resistant alloys and Titanium alloys.
- High accuracy for finishing both side walls and bottom surfaces.
- Coolant through the center of head.
- Available in 6 or 8 flutes.



Cat.No.	Stock	No. of Flutes	Dimensions (mm)							
			DC	RE	APMX	LF	DCSFMS	MD	C	W
SMSA-8160R05-M8	○	8	16	0.5	16	30	15	M8	5.5	14
SMSA-8160R10-M8	○			1						
SMSA-6160R20-M8	○	6		2						
SMSA-6160R30-M8	○			3						
SMSA-8200R05-M10	○	8	20	0.5	20	35	19	M10		17
SMSA-8200R10-M10	○			1						
SMSA-8200R20-M10	○			2						
SMSA-6200R30-M10	○	6		3						
SMSA-8250R10-M12	○	8	25	1	25	43	24	M12		22
SMSA-8250R20-M12	○			2						
SMSA-6250R30-M12	○	6		3						
SMSA-8300R10-M16	○	8	30	1	30	56	29	M16		27
SMSA-8300R20-M16	○			2						
SMSA-6300R30-M16	○	6		3						
SMSA-8320R10-M16	○	8	32	1	32		30			
SMSA-8320R20-M16	○			2						
SMSA-6320R30-M16	○	6		3						

● : Stocked Items ○ : Stock in Japan

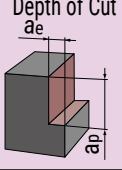
◆ RECOMMENDED TIGHTENING TORQUE

Tool dia. ϕ Dc(mm)	Width Across Flat W(mm)	Cat. No 	Tightening torque
ϕ 16	14	DS-14	10~11 N·m
ϕ 20	17	DS-17	10~16 N·m
ϕ 25	22	DS-22	15~20 N·m
ϕ 30	27	DS-27	20~25 N·m
ϕ 32	27	DS-27	20~25 N·m

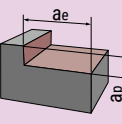
⚠ Warning – Use DIJET “DS-type” spanner wrench to prevent over-tightening.

■ Recommended Cutting Conditions

● Side Cutting

Material	Depth of Cut 	Tool dia. (mm)											
		16			20			25			30 / 32		
		ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	$a_p \leq DC$ $a_e \leq 0.03DC$	70	2,000	500	70	1,600	400	100	1,300	300	110	1,000	240
		110	1,800	400	125	1,400	300	150	1,150	250	160	900	200
		150	1,600	300	175	1,200	250	200	1,000	200	210	800	160
Mold steel (NAK80, HPM1, P21) 38-43HRC	$a_p \leq DC$ $a_e \leq 0.03DC$	70	1,400	300	70	1,100	280	100	900	240	110	700	180
		110	1,200	240	125	950	200	150	800	180	160	600	130
		150	1,000	180	175	800	150	200	600	120	210	500	100
Austenitic stainless steel (SUS304, 316, 317)	$a_p \leq DC$ $a_e \leq 0.03DC$	70	2,000	500	70	1,600	400	100	1,300	300	110	1,000	240
		110	1,800	400	125	1,400	300	150	1,150	250	160	900	200
		150	1,600	300	175	1,200	250	200	1,000	200	210	800	160
Aluminium alloy (A5052)	$a_p \leq DC$ $a_e \leq 0.03DC$	70	4,000	900	70	3,200	800	100	2,600	650	110	2,000	500
		110	3,600	800	125	2,800	600	150	2,300	500	160	1,800	400
		150	3,200	700	175	2,500	500	200	2,000	400	210	1,600	300
Titanium alloy (Ti-6Al-4V) 35-43HRC	$a_p \leq DC$ $a_e \leq 0.03DC$	70	1,400	300	70	1,100	280	100	900	240	110	700	180
		110	1,200	240	125	950	200	150	800	180	160	600	130
		150	1,000	180	175	800	150	200	600	120	210	500	100
Heat resistant alloy (INCO718) 35-43HRC	$a_p \leq DC$ $a_e \leq 0.03DC$	70	800	200	70	600	150	100	500	120	110	400	100
		110	700	150	125	550	120	150	450	100	160	380	90
		150	600	120	175	500	100	200	400	80	210	350	80

● Bottom Cutting

Material	Depth of Cut 	Tool dia. (mm)											
		16			20			25			30 / 32		
		ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	n (min ⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	$a_e \leq DC$ $a_p \leq 0.03DC$	70	2,000	1,600	75	1,600	1,300	100	1,300	1,000	110	1,000	800
		110	1,800	1,400	125	1,400	1,100	150	1,150	900	160	900	700
		150	1,600	1,200	175	1,200	950	200	1,000	800	210	800	600
Mold steel (NAK80, HPM1, P21) 38-43HRC	$a_e \leq DC$ $a_p \leq 0.03DC$	70	1,400	1,100	75	1,100	900	100	900	700	110	700	550
		110	1,200	950	125	950	800	150	800	600	160	600	500
		150	1,000	800	175	800	600	200	600	500	210	500	400
Austenitic stainless steel (SUS304, 316, 317)	$a_e \leq DC$ $a_p \leq 0.03DC$	70	2,000	1,600	75	1,600	1,300	100	1,300	1,000	110	1,000	800
		110	1,800	1,400	125	1,400	1,100	150	1,150	900	160	900	700
		150	1,600	1,200	175	1,200	950	200	1,000	800	210	800	600
Aluminium alloy (A5052)	$a_e \leq DC$ $a_p \leq 0.03DC$	70	4,000	3,200	75	3,200	2,500	100	2,600	2,000	110	2,000	1,600
		110	3,600	2,800	125	2,800	2,200	150	2,300	1,800	160	1,800	1,400
		150	3,200	2,500	175	2,500	2,000	200	2,000	1,600	210	1,600	1,200
Titanium alloy (Ti-6Al-4V) 35-43HRC	$a_e \leq DC$ $a_p \leq 0.03DC$	70	1,400	1,100	75	1,100	900	100	900	700	110	700	550
		110	1,200	950	125	950	800	150	800	600	160	600	500
		150	1,000	800	175	800	600	200	600	500	210	500	400
Heat resistant alloy (INCO718) 35-43HRC	$a_e \leq DC$ $a_p \leq 0.03DC$	70	800	650	75	600	500	100	500	400	110	400	320
		110	700	550	125	550	450	150	450	380	160	380	300
		150	600	500	175	500	400	200	400	320	210	360	280

Note) 1. When finishing side wall , reduce ae and increase ap for higher efficiency and for preventing more heat generation.
 2. When finishing bottom face, reduce ap and increase Vf to optimize use of corner radius geometry for high feed machining.
 3. Use appropriate coolant.

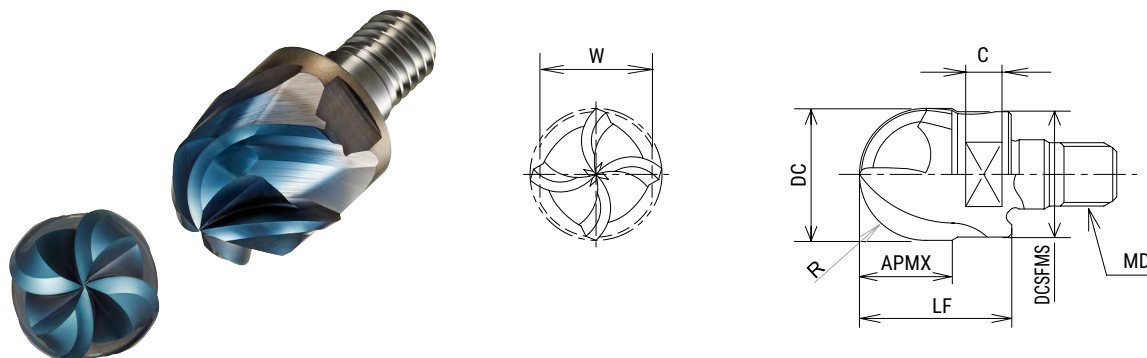


SMHB
TYPE

4-Flute Solid Carbide Ball Nose Modular Head

For Hard or Difficult to Cut Materials from Roughing to Finishing

- Unique blade shape with sub pocket in center of cutting edge allows stable machining & good chip evacuation.
- Torsional angles of the ball & peripheral flutes are increased to reduce cutting resistance & suppress vibration.



Cat.No.	Stock	No. of Flutes	Dimensions (mm)							
			DC	RE	APMX	LF	DCSFMS	MD	C	W
SMHB-4160-M8	●	4	16	8	11.2	19	15	M8	5.5	14
SMHB-4200-M10	●		20	10	14	23	19	M10		17

● : Stocked Items ○ : Stock in Japan

◆ RECOMMENDED TIGHTENING TORQUE

Tool dia. ϕD_c (mm)	Width Across Flat W(mm)	Cat. No	Tightening torque
$\phi 16$	14	DS-14	10~11 N·m
$\phi 20$	17	DS-17	10~16 N·m

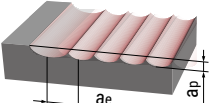
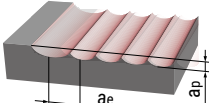
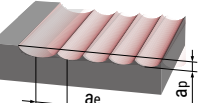
Radius tolerance (mm)

Radius	R tolerance
R8	± 0.008
R10	± 0.010

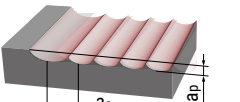
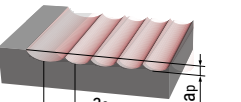
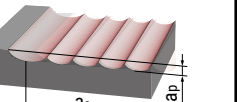
▲ Warning – Use DIJET “DS-type” spanner wrench to prevent over-tightening.

■ Recommended cutting conditions

■ FINISHING

Material		Carbon steel・Alloy steel		Hardened die steel (SKD61,DAC,DHA) 42~52HRC		Stainless steel・Heat resistant alloy 38~42HRC	
Type of machining		 $ap \leq 0.03Dc$ $ae \leq 0.03Dc$		 $ap \leq 0.03Dc$ $ae \leq 0.03Dc$		 $ap \leq 0.03Dc$ $ae \leq 0.03Dc$	
		Tool dia.		Tool dia.		Tool dia.	
		R	φ Dc	n (min ⁻¹)	Vf (mm/min)	n (min ⁻¹)	Vf (mm/min)
8	16	6,000	4,000	5,000	3,000	5,500	3,500
10	20	5,700	4,000	4,500	3,000	5,000	3,500

■ SEMI-FINISHING · ROUGHING

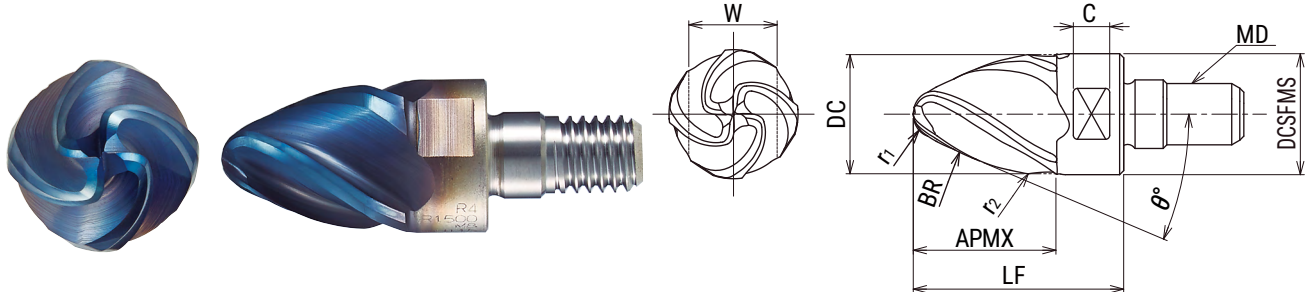
Material		Carbon steel · Alloy steel ~25HRC		Hardened die steel (SKD61,DAC,DHA) 42~52HRC		Stainless steel · Heat resistant alloy 38~42HRC	
Type of machining		 $ap \leq 0.1Dc$ $ae \leq 0.25Dc$		 $ap \leq 0.1Dc$ $ae \leq 0.25Dc$		 $ap \leq 0.1Dc$ $ae \leq 0.25Dc$	
Tool dia.		n (min ⁻¹)	Vf (mm/min)	n (min ⁻¹)	Vf (mm/min)	n (min ⁻¹)	Vf (mm/min)
R	φ Dc						
8	16	4,500	3,000	3,800	2,200	4,200	2,600
10	20	4,300	3,000	3,400	2,200	3,800	2,600

STLP TYPE

Solid Modular Head with Barrel-Shaped Cutting Edges

- 4flutes Helix angle 30°

Radius form accuracy
on the outer periphery
±0.010mm



Cat.No.	Stock	Grade	No.of Flutes	Dimensions (mm)										
				DC	APMX	LF	BR	r ₁	r ₂	θ°	DCSFMS	MD	C	W
STLP-4160T20R4-M8	●	DH115	4	16	17.7	26	1500	4	4	20°	15	M8	5.5	14
STLP-4200T15R4-M10	●			20	30	38	1500	4	5	15°	19	M10	5.5	17
STLP-4200T20R5-M10	●			20	22	30	1500	5	5	20°	19	M10	5.5	17
STLP-4250T20R5-M12	●			25	28	38	2,200	5	5	20°	24	M12	5.5	22

● : Stocked Items ○ : Stock in Japan

◆ RECOMMENDED TIGHTENING TORQUE

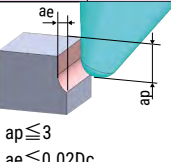
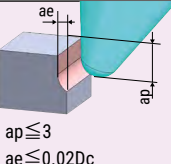
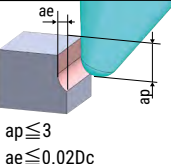
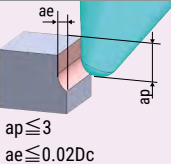
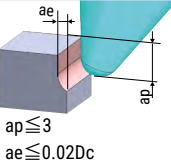
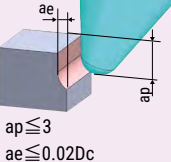
Tool dia. øDc(mm)	Width Across Flat W(mm)	Cat. No 	Tightening torque
ø16	14	DS-14	10~11 N·m
ø20	17	DS-17	10~16 N·m
ø25	22	DS-22	15~20 N·m

⚠ Warning - Use DIJET "DS-type" spanner wrench to prevent over-tightening.

Recommended cutting conditions

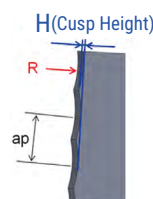
STLP Type - with Barrel R



Material			Tool dia.(mm)								
			16			20			25		
	a_p (mm)	a_e (mm)	l (mm)	n (min ⁻¹)	V_f (mm/min)	l (mm)	n (min ⁻¹)	V_f (mm/min)	l (mm)	n (min ⁻¹)	V_f (mm/min)
Carbon steel (S50C, S55C) below 250HB	 $a_p \leq 3$ $a_e \leq 0.02D_c$	70	10,000	3,200~4,000	70	8,000	2,600~3,200	70	6,400	2,000~2,600	
		110	8,800	2,500~3,200	125	7,200	2,000~2,600	140	5,700	2,000~2,600	
		150	7,800	1,900~2,500	175	6,400	1,600~2,100	200	5,100	1,200~1,600	
Alloy steel, Tool & die steel, Mold steel (SKD, SKH, NAK) below 42HRC	 $a_p \leq 3$ $a_e \leq 0.02D_c$	70	10,000	2,400~3,200	70	8,000	2,000~2,600	70	6,400	1,500~2,000	
		110	8,800	1,800~2,500	125	7,200	1,500~2,100	140	5,700	1,100~1,600	
		150	7,800	1,300~1,900	175	6,400	1,300~1,600	200	5,100	800~1,200	
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	 $a_p \leq 3$ $a_e \leq 0.02D_c$	70	10,000	2,000~2,800	70	8,000	1,600~2,300	70	5,100	600~1,000	
		110	8,800	1,400~2,100	125	7,200	1,200~1,800	140	4,500	500~700	
		150	7,800	1,000~1,600	175	6,400	800~1,300	200	3,800	300~600	
Austenitic stainless steel (SUS304, 316, 317) 17Cr	 $a_p \leq 3$ $a_e \leq 0.02D_c$	70	10,000	2,000~2,800	70	8,000	1,600~2,300	70	6,400	1,300~1,800	
		110	8,800	1,400~2,100	125	7,200	1,200~1,800	140	5,700	900~1,400	
		150	7,800	1,000~1,600	175	6,400	800~1,300	200	5,100	600~1,000	
Titanium alloy (Ti-6Al-4V) 35-43HRC	 $a_p \leq 3$ $a_e \leq 0.02D_c$	70	8,000	1,000~1,600	70	6,400	800~1,200	70	5,100	800~1,200	
		110	7,000	800~1,400	125	5,600	700~900	140	4,500	700~900	
		150	6,000	500~1,000	175	4,800	400~800	200	3,800	400~800	
Heat resistant alloy (INCO718) 35-43HRC	 $a_p \leq 3$ $a_e \leq 0.02D_c$	70	4,000	320~480	70	3,200	260~380	70	2,500	200~300	
		110	3,500	280~420	125	2,800	220~340	140	2,200	180~260	
		150	3,000	240~360	175	2,400	190~290	200	1,900	150~230	

Please refer to chart and formula below to calculate a_p .

$$a_p = 2 \sqrt{(R^2 - (R - H)^2)}$$



Pick amount a_p (mm)		Cusp height (mm)									
Cat.No.	R	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010
STLP-4160T20R4-M8	1500										
STLP-4200T15R4-M10		3.46	4.90	6.00	6.93	7.75	8.49	9.17	9.80	10.39	10.95
STLP-4200T20R5-M10											
STLP-4250T20R5-M12	2200	4.20	5.93	7.27	8.39	9.38	10.28	11.10	11.87	12.59	13.27

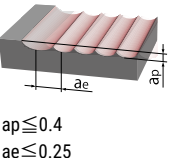
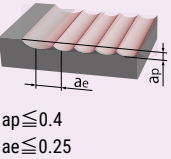
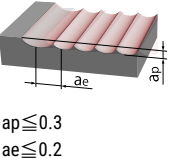
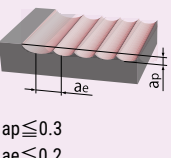
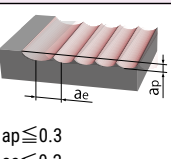
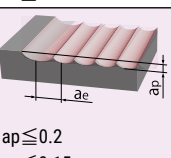
Note

1. Please apply coolant according to work material.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. In case of machine rpm not enough, reduce V_f at same rate.

■ Recommended cutting conditions



● STLP Type - with Tip R

Material			Tool dia.(mm)								
			16			20			25		
	a_p (mm)	a_e (mm)	ℓ (mm)	n (min^{-1})	V_f (mm/min)	ℓ (mm)	n (min^{-1})	V_f (mm/min)	ℓ (mm)	n (min^{-1})	V_f (mm/min)
Carbon steel (S50C, S55C) below 250HB	 $a_p \leq 0.4$ $a_e \leq 0.25$	70	7,800	1,090~1,400	70	6,300	880~1,100	70	5,100	710~920	
		110	7,100	850~1,100	125	5,700	680~910	140	4,600	550~740	
		150	6,300	630~880	175	5,000	500~700	200	4,100	410~570	
Alloy steel, Tool & die steel, Mold steel (SKD, SKH, NAK) below 42HRC	 $a_p \leq 0.4$ $a_e \leq 0.25$	70	7,800	780~1,090	70	6,300	630~880	70	5,100	510~710	
		110	7,100	560~850	125	5,700	450~680	140	4,600	370~550	
		150	6,300	440~690	175	5,000	350~550	200	4,100	290~450	
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	 $a_p \leq 0.3$ $a_e \leq 0.2$	70	6,300	310~560	70	5,000	250~400	70	4,100	210~370	
		110	5,500	270~380	125	4,400	220~290	140	3,600	180~250	
		150	4,700	180~320	175	3,800	140~260	200	3,100	120~220	
Austenitic stainless steel (SUS304, 316, 317) 17Cr	 $a_p \leq 0.3$ $a_e \leq 0.2$	70	7,800	700~930	70	6,300	560~750	70	5,100	460~610	
		110	7,100	490~780	125	5,700	390~620	140	4,600	320~510	
		150	6,300	310~560	175	5,000	250~450	200	4,100	210~370	
Titanium alloy (Ti-6Al-4V) 35-43HRC	 $a_p \leq 0.3$ $a_e \leq 0.2$	70	5,900	230~470	70	4,700	180~370	70	3,800	150~300	
		110	5,100	200~350	125	4,100	160~280	140	3,300	130~230	
		150	4,300	170~300	175	3,500	140~240	200	2,800	110~200	
Heat resistant alloy (INCO718) 35-43HRC	 $a_p \leq 0.2$ $a_e \leq 0.15$	70	4,000	320~480	70	3,200	260~380	70	2,500	100~130	
		110	3,500	280~420	125	2,800	220~340	140	2,200	90~110	
		150	3,000	240~360	175	2,400	190~290	200	1,900	80~100	

Note

1. Please apply coolant according to work material.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. In case of machine rpm not enough, reduce V_f at same rate.

■ PROPER MOUNTING OF MODULAR HEADS

1 Cleaning



Remove dirt and chips with air from the connecting thread and face of modular head and MSN/MGN shank holder.

2 Initial Tightening



Tighten by hand until the head and the shank holder faces touch.

3 Final Tightening



Tighten slowly with torque control spanner wrench or DIJET DS type spanner wrench and confirm that there is no gap.

- Attention)
1. Final tightening without initial tightening cause connecting thread damage.
 2. Only use DS type spanner wrench when use Solid modular head (SMSA/SMSR/SMAL type)

Attention

1. Only use torque control spanner wrench or DIJET DS type spanner wrench.
In case of choosing torque control spanner wrench, confirm that the wrench size is matched to the dimensions W & C of each modular head.
2. Only apply gentle pressure on wrench.
3. Confirm there is no gap between MSN/MGN shank holder and modular head



Torque control spanner



Spanner wrench (DS type)

■ Solid modular heads(SMSA/SMSR/SMAL/SMHB/STLP)

Thread	Tightening torque	Spanner size(W)	Cat.No. 
M8	10~11N·m	14	DS-14
M10	10~11N·m	14	DS-14
M10	10~16N·m	17	DS-17
M12	15~20N·m	19, 22	DS-19, DS-22
M16	20~25N·m	27	DS-27

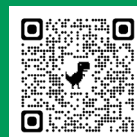
Note) Modular heads are supplied without spanner wrench

HEADQUARTERS
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JQA-2089



JQA-EM1580